

REMARKS

A. Introduction

Claims 1-8 and 18-34 were presented for examination.

Claim 2 was objected to.

Claims 1-8 and 18-34 were rejected.

Claims 1-8 have been cancelled.

Claims 18-23, 25-28, 31 and 34 have been amended.

Claims 35-54 have been added with this response.

B. Objection to the Disclosure in the Specification

The Examiner objected to the disclosure in the specification because the first paragraph failed to disclose a cross-reference to the related application. Accordingly, on page 1 of the application, the Applicant has amended the specification to reference the underlying related application.

C. Objection to Claim 2

Claim 2 was objected to because of improper punctuation. Claim 2 ended with a comma rather than a period. Claim 2 has been cancelled, and thus, no further correction is required.

D. Rejection of Claims 26 and 27 under 35 U.S.C. §112

The Examiner rejected Claims 26 and 27 under 35 U.S.C. §112 as being indefinite. It was the Examiner's opinion that it is unclear whether the limitation "a first cylindrical section" in line 13 of Claim 26 is the same as limitation "first cylindrical section" recited in line 7 of Claim 26. Claim 26 of the application has now been amended and the limitation beginning on

line 13 of Claim 26 which contained the language “a first cylindrical section” has been deleted from Claim 26. With this amendment, Claim 26 is no longer indefinite.

The Examiner rejected Claim 27 under 35 U.S.C. §112 as being indefinite. The Examiner correctly stated that in the second to last line in Claim 27, the phrase “said first cylindrical” should be “said second cylindrical.” Claim 27 has been amended to substitute “second” for “first” as suggested by the Examiner.

E. Rejection of Claims 1-6 and 8 Under 35 U.S.C. §102(b) as Being Anticipated by Kimura, et al

The Examiner has rejected Claims 1-6 and 8 under 35 U.S.C. §102(b) as being anticipated by Kimura, et al. With this response, Claims 1-8 have been cancelled in this application and no further consideration of these claims is necessary.

F. Rejection of Claim 1 Under 35 U.S.C. §102(b) as Being Anticipated by St. Onge

The Examiner rejected Claim 1 of the Patent Application under 35 U.S.C. §102(b) as being anticipated by St. Onge. With this response, Claim 1 of the application has been cancelled and no further consideration of this claim is necessary.

G. Rejection of Claims 18 and 19 Under 35 U.S.C. §102(b) as Being Anticipated by St. Onge

The Examiner rejected Claim 18 under 35 U.S.C. §102(b) as being anticipated by St. Onge. The Examiner was of the opinion that each of the limitations set forth in Claim 18 were disclosed in the St. Onge reference. As more fully set forth below, the Applicant respectfully disagrees with the Examiner’s reliance on St. Onge to reject Claim 18. In addition, the Applicant has made certain amendments to Claim 18 which clearly distinguished the Claim from the St. Onge reference.

Line 5 of Claim 1 has been amended to include an additional limitation. The female end of the pipe is now described as “having an enlarged exterior diameter.” The female end of the pipe disclosed in the St. Onge reference does not have an enlarged exterior diameter. To the contrary, in St. Onge, the exterior diameter of the female end is the same as the remainder of pipe with the exception of the male end. In fact, the design of the pipe in the St. Onge reference is intended to have a uniform exterior diameter when connected to a similar adjacent pipe. With this amendment, Claim 18 of the Patent Application is distinguished from the St. Onge reference.

As originally drafted, Claim 19 had a typographical error and, as written, depended from Claim 1. With this response, Claim 19 has been amended to correctly depend from Claim 18. Since Claim 18, as amended, is distinguished from the St. Onge reference, Claim 19 is also distinguished.

H. Rejection of Claim 20 under 35 U.S.C. §102(b) as Being Anticipated by St. Onge

The Examiner has rejected Claim 20 based on the St. Onge reference stating that St. Onge reference discloses a PVC pipe of a substantially uniform circumference 22 at the male end. The Applicant respectfully disagrees with the Examiner’s statement for two reasons.

First, the male end of the pipe disclosed in the St. Onge reference is not of a substantially uniform circumference. To the contrary, the male end of the St. Onge reference is stepped with several different, clearly defined exterior diameters creating a nonuniform circumference. The leading end (ref. no. 76) of the male end in the St. Onge reference has the smallest diameter creating a first circumference. The intermediate portion between the threaded portion (ref. no. 74) and the angled lip (ref. no. 84) has a second diameter, creating a second circumference. Lastly, the circumference of the pipe to the right of the angled lip (ref. no. 84) depicted by reference no. 22, if it is part of the male end, has a third diameter creating a third circumference.

Clearly, the stepped nature of the male end in St. Onge creates the three different circumferences and is not uniform. In contrast, the pipe in the present invention is not stepped and, although threaded, has a substantially uniform circumference.

Second, Claim 18, as amended, patentably distinguishes over St. Onge. Since, Claim 20 depends from Claim 18, it also patentably distinguishes over St. Onge.

I. Rejection of Claims 22-25 Under 35 U.S.C. §102(b) as Being Anticipated by St. Onge

Claim 18 as amended patentably distinguishes over St. Onge. Since Claim 22-25 depend from Claim 18, they also patentably distinguish over St. Onge.

Further, with regard to Claim 24, the St. Onge reference does not teach or disclose any specific or measurable lateral force which can be withstood by the pipe. In addition, the St. Onge reference does not disclose 2 inch diameter pipe. Instead, it discloses a sewer pipeline which will have a diameter measurable in feet rather than inches. Consequently, Claim 24 further distinguishes over St. Onge.

J. Rejection of Claim 26 Under 35 U.S.C. §102(b) as Being Anticipated by St. Onge

The Examiner rejected Claim 26 stating that each of the limitations set forth in Claim 26 are anticipated by St. Onge. The Applicant respectfully disagrees with the Examiner. Several of the limitations disclosed in Claim 26 are not anticipated by St. Onge. Nevertheless, the Applicant has amended Claim 26 with this response further distinguishing it from the St. Onge reference.

The Examiner has stated that St. Onge “discloses a single piece polyvinyl chloride (PVC) drop pipe.” This is not correct. As disclosed in the specification of the present application, “drop pipe” is a pipe used in water wells which connects to a submersible pump and carries the water from within the well to the surface. The water in the drop pipe is under the higher pressure

(500-600 lbs.) created by the pump and necessary to carry the water to the surface. In addition, the connections between the numerous sections of drop pipe in a well must withstand the high tensile or hanging load created by the hanging pipe and submersible pump.

In contrast, the pipe disclosed in the St. Onge reference is used for relining horizontal sewer or storm drain lines or other low pressure water lines (St. Onge Patent, Col. 3, Lines 15-20). It is known in the art that the pressure in these types of lines are typically 30 lbs. or less. This type of pipe is much larger than drop pipe and is designed to have underneath support. (St. Onge Patent, Figure 1) It is not designed to withstand the same pressure and hanging loads as drop pipe. Consequently, the drop pipe limitation included in Claim 26 clearly distinguishes this claim from the St. Onge reference.

Although the Applicant does not believe it is necessary for allowance of Claim 26, the Applicant has made certain amendments to Claim 26 which further distinguish Claim 26 over the St. Onge reference. A new line has been added to Claim 26 after line 4, which includes an additional limitation. The female end of the pipe is now described as “having an enlarged exterior diameter.” As described above, with regard to Claim 18, (subparagraph G) the female end of the pipe disclosed in the St. Onge reference does not have an enlarged exterior diameter.

K. Rejection of Claim 27, 28, 30, 31 and 33 Under 35 U.S.C. §102(b) as Being Anticipated by St. Onge

The Examiner rejected Claims 27, 28, 30, 31, and 33 stating that each of the limitations set forth in those claims were anticipated by St. Onge. The Applicant respectfully disagrees with the Examiner.

Claims 27, 28, 30, 31 and 33 depend from Claim 26, thus, each claim contains the drop pipe limitation. As with Claim 26 described above (subparagraph J), this drop pipe limitation distinguishes each of these claims from the St. Onge reference. In addition, Claim 26 has been

amended further distinguishing it over the St. Onge reference. Thus, as dependent claims, each of the Claims 27, 28, 30, 31 and 33 also distinguish over the St. Onge reference.

Moreover, claim 28 has an additional limitation requirement that the “PVC drop pipe is of a substantially uniform circumference at the male end.” As discussed more fully in regard to Claim 20 above (subparagraph H), the St. Onge reference is stepped at the male end and does not have a substantially uniform circumference.

Finally, Claim 33 contains the additional limitation requiring the PVC drop pipe to “withstand approximately 1,000 pounds of lateral force without leaking if said PVC drop pipe is a 2” diameter PVC drop pipe.” As discussed above with regard to Claim 24 (subparagraph I), the St. Onge reference does not disclose or anticipate such limitations.

L. Rejection of Claim 7 Under 35 U.S.C. §103(a) as Being Unpatentable Over Kimura, et al in View of Kane, et al.

As previously discussed, Claim 7 has been cancelled. Thus, no further correction is required.

M. Rejection of Claims 32 and 34 Under 35 U.S.C. §103(a) as Being Unpatentable Over St. Onge in view of Kane, et al.

Claim 34, prior to any amendments herein, contained a typographical error and incorrectly depended from Claim 1. Claim 34, as currently amended, correctly depends from Claim 26. Claim 32 also depends from Claim 26. As discussed above (Subparagraph J), Claim 26 requires the “drop pipe” limitation and, as amended, Claim 26 contains a limitation requiring the pipe’s female end to have “an enlarged exterior diameter.” Both of these limitations patentably distinguish over St. Onge. Since Claims 33 and 34 (as amended) depend from Claim 26, they also patentably distinguish over St. Onge.

N. **Rejection of Claims 32 and 34 under U.S.C. §103(a) as Being Unpatentable Over St. Onge in View of Kane, et al and 21 and 30 under 35 U.S.C. §103(a) as Being Unpatentable Over St. Onge in View of Kimura, et al.**

To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation either in the references themselves or in the knowledge generally available to one of ordinary skill in the art to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all of the claim limitations. M.P.E.P. §2143. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must be found in the prior art, not in the applicant's disclosure. *In re: Vaeck*, 947 F.2d 488, 20 U.S.P.Q. 2d 1438 (Fed. Cir. 1991). The mere fact that references can be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination. *In re: Mills*, 916 F.2d 680, U.S.P.Q. 2d 1430 (Fed. Cir. 1990). Simply because the claimed invention is within the capabilities of one of ordinary skill in the art and because the references relied upon teach that all aspects of the claimed invention were individually known in the art is not sufficient, by itself, to establish a *prima facie* case of obviousness without some objective reason to combine the teachings of the references. *Ex parte Levengood* 28 U.S.P.Q. 2d 1300 (Bd. Pat. App. & Inter. 1993). See also, *Al-site Corp. v. V.S.I. Int'l, Inc.*, 174 F.3d 1308, 50 U.S.P.Q. 2d 1161 (Fed. Cir. 1999) (the level of skill in the art cannot be relied upon to provide the suggestion to combine references). If the references cited by the Examiner are considered in light of these standards for obviousness, it becomes clear that the St. Onge, Kane, et al and Kimura, et al references when combined do not teach or suggest all of the present invention's claim limitations. Moreover,

there is no suggestion anywhere in these prior art references to combine the references as suggested by the Examiner.

The claimed invention is directed to a PVC drop pipe for use in water wells which is relatively inexpensive to manufacture, easy to install without the need for couplings or welding, disconnectible and reusable, resistant to cracking or breaking, and provides lateral strength. All of these characteristics are provided by the present invention and all are not present in the cited references when combined. For example, none of the cited references are drop pipe for use in water wells.

As discussed above (subparagraphs H and J) the St. Onge reference is not drop pipe. Instead, it is used in re-lining low pressure, horizontal pipe applications. It is designed to be supported from underneath. It is not designed to withstand the same pressure and hanging loads as drop pipe. In addition, the St. Onge reference is a flush threaded pipe and does not have an enlarged exterior diameter at the female end.

The Kane, et al reference is directed to casing for oil wells. (See Kane, et al, col. 1, lines 1-9). It is well known in the art that casing is the piping used to line the bore hole of a well to preserve the integrity of the bore hole and protect the pipe within. The Kane reference discusses well casing being “made of good quality steel.” (See Kane, et al, col. 2, lines 41 and 42). As compared to PVC pipe, metal pipe is more expensive, heavier and will have a tendency to corrode. In contrast to the present invention, the connection of two links of casing in the Kane, et al reference is sealed with a weld. (See Kane, et al, col. 3, lines 34-45). Consequently, it is not disconnectible and reusable.

The Kimura, et al reference, like the Kane, et al reference, is directed to casing and tubing for use in oil and gas wells. (See Kimura, et al, Col. 1, lines 5-9). More specifically, Kimura,

et al is directed to fiberglass reinforced (FRP) pipe. It is known in the art that FRP is significantly more expensive to manufacture than PVC pipe making it cost prohibitive for use in water wells. It is also known in the art that FRP pipe is more brittle than PVC pipe making it more susceptible to breaking and cracking at the joints. Finally, the Kimura, et al reference lacks any lead-in section or alignment sleeve at the female end which helps funnel the male end into the female threads and provides lateral strength.

In contrast to the Kane, et al and Kimura, et al references, the present invention is once again, directed to PVC drop pipe designed for water well applications, as opposed to oil field applications. And it is significantly less expensive to manufacture than steel or FRP pipe. Unlike the Kane, et al reference, there are no welds used within connecting lines of the pipe and it is disconnectible and reusable. Unlike the Kimura, et al reference, PVC pipe is not brittle and less susceptible to cracking or breaking at the joints. In addition, the present invention has a lead in or alignment sleeve feature at the female end described in Claim 18 as the “second and large interior diameter” and in Amended Claim 26 as “the first section.” This lead-in section or alignment sleeve funnels the male end to the threads of the female end and adds lateral strength to the connection of the pipes.

Importantly, there is no suggestion in either the Kane, et al or Kimura, et al references that piping in those references be manufactured out of PVC pipe. To the contrary, piping in these references are made out of steel and fiberglass reinforced plastic, respectively, and are directed to and adapted for use in the oil field. For example, the Kane, et al reference is steel which can be repeatedly rammed through obstacles as it is being lowered into the well bore, the procedure known as “spudding.” The fiberglass reinforced plastic pipe disclosed in the Kimura, et al reference is particularly resistant to the corrosive conditions which exist in the oil field.

PVC pipe, on the other hand, could not withstand the spudding practice, nor is it resistant to many of the corrosive materials which exist in the oil field. To that extent, the Kane, et al reference and Kimura, et al reference actually teach away from making the combination as suggested by the Examiner.

For these reasons, it would not be obvious to combine the references as suggested by the Examiner. Consequently, the Examiner's rejection of Claims 21, 30, 32 and 34 under 35 U.S.C. §103(a) is improper.

O. Double Patenting

The Examiner has rejected Claims 1-8 and 18-34 under judicially created doctrine of double patenting Claims 1-8 of U.S. Patent No. 6,666,480. Claims 1-8 have been cancelled. Consequently, there is no further risk of double patenting with regard to those claims. With regard to Claims 18-34 and all remaining claims, the Applicant has filed a terminal disclaimer contemporaneously with this response.

P. Miscellaneous Amendments to the Claims

In addition to the amendments to the claims described hereinabove, the Applicant has made other amendments to the claims which were not done in response to the Examiner's objections and rejections in this office action. These amendments were made to eliminate typographical errors, further clarify the invention and eliminate unnecessary limitations in the claims. By way of example and without limitation, in claim 26, the term "cylindrical" was eliminated in several lines and in claim 18, the word "of" was substituted for the word "for" in line 8.

CONCLUSION

In view of the amendments made to the claims and the remarks following, it is submitted that Claims 18-54 are in a condition for allowance. Reconsideration and withdrawal of the

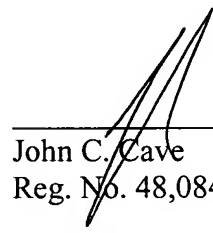
objections and rejections of Claims 18-34 are hereby requested. If impediments to the allowance of Claims 18-54 remain in a telephone conference between the undersigned and the Examiner would help to remove such impediments, in the opinion of the Examiner, a telephone conference is requested.

Please charge the fee for additional claims and a three-month extension of time to our firm's deposit account no. 500808.

Respectfully submitted,

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